

REMARKS

Claims 1, 2, 4-6, 9, 12, 27 and 28 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 6,215,235 to Osamura in view of U.S. Patent 4,581,558 to Takamura et al and further in view of U.S. 2001/0030495 to Kanao et al. Claims 13-17 and 21-24 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Osamura in view of Takamura et al. Claims 18, 25, 26 and 29 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Osamura in view of Kanao et al. Claim 30 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Osamura in view of Kanao et al, further in view of Takamura et al. The grounds for rejection remain the same as set forth in the previous Office Action.

Applicants traverse, and respectfully request the Examiner to reconsider in view of the amendment to the claims and the following remarks.

In the “Response to Arguments” at page 15, the Examiner cited Fig. 10 of Osamura as illustrating a weld portion which extends below a lowest end of an outer surface of the laser-weld. The Examiner further cited Fig. 3 of Osamura as showing the laser beam being applied to multiple areas of the chip (so as to meet the limitation of claim 18 which calls for applying a laser beam to the flange portion in an oblique direction to both the joint face of the electrode base metal of the ground electrode and to the side surface of the protrusion).

In Fig. 10 of Osamura, weld portion 4 is at the same level or extends slightly below a lowest end of an outer surface of the laser weld portion. To further distinguish over Osamura, the independent claims have been amended to recite that “said weld portion extending inwardly of the imaginary extension lines of generatrices of a side surface of the protrusion extending below a lowest end of an exposed outer surface of the laser-weld portion” as shown in Fig. 6 of the present specification. In Fig. 10 of Osamura, that portion of the weld extending inwardly of

imaginary extension lines of generatrices of a side surface of the protrusion are well above the lowest end of an exposed outer surface of the laser weld portion.

The distinction is clearly shown by comparing Fig. 10 of Osamura with Fig. 6 of the present specification as shown below.

FIG. 6 FROM SPECIFICATION, INCLUDING ANNOTATIONS

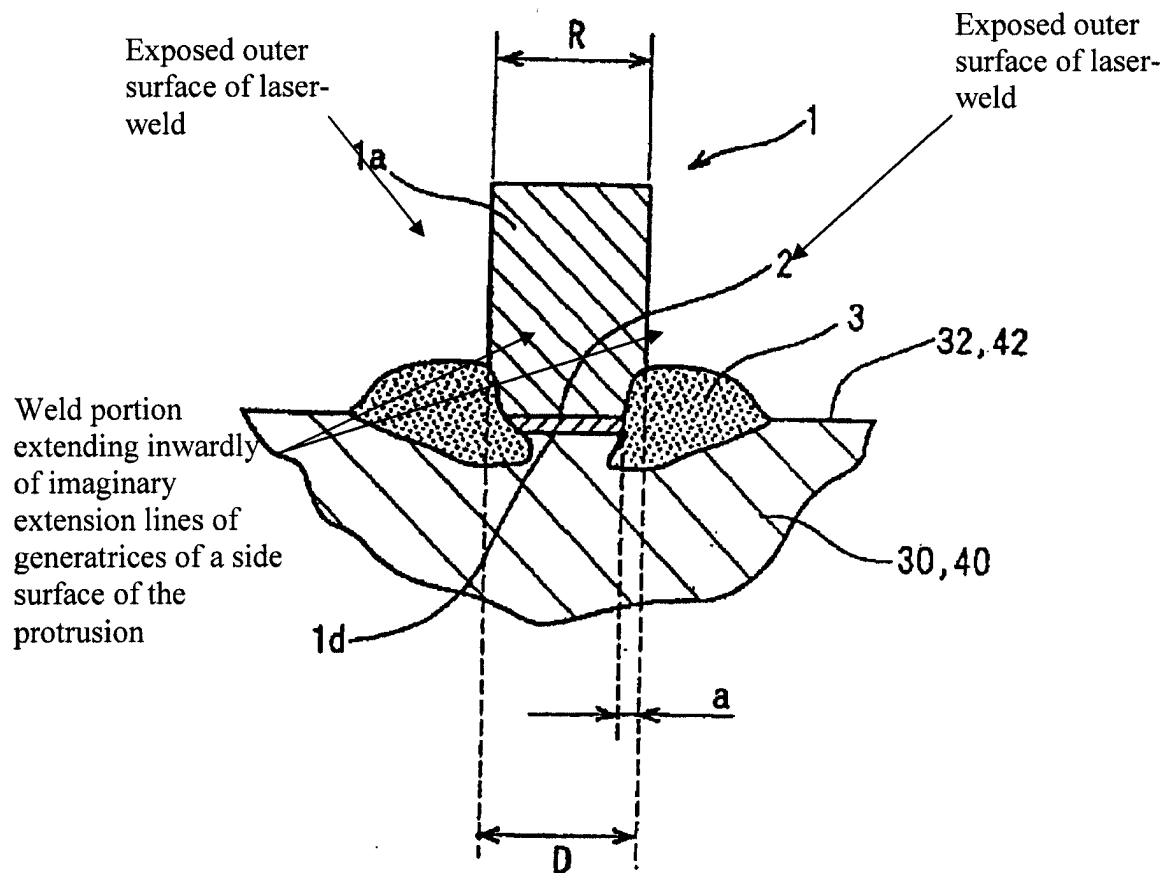
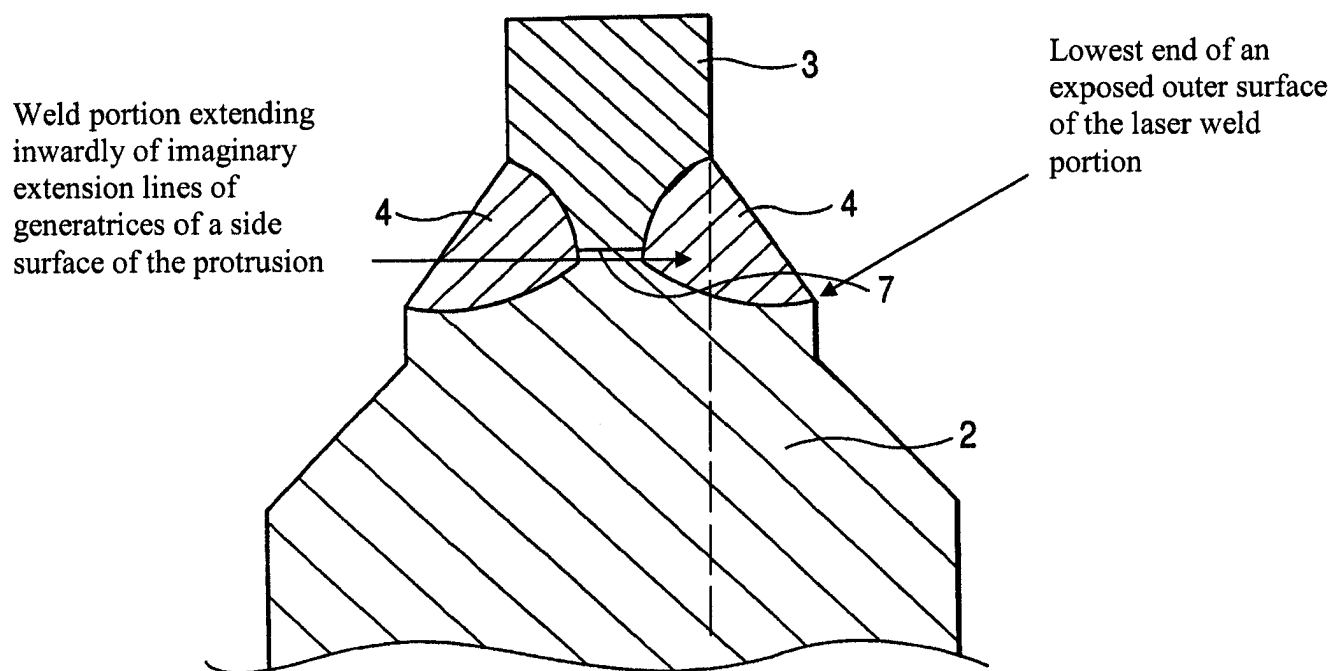


FIG. 10 OF OSAMURA, WITH ANNOTATIONS

FIG. 10



Regarding the Examiner's second point, the laser beam shown in Fig. 3C and Fig. 8A of Osamura is not applied in an oblique direction as required by method claims 1 and 18. Further, Applicants reiterate that because the laser beam in the present invention is applied in an oblique direction, the resulting weld portion extending inwardly of imaginary extension lines of generatrices of the side surface of the protrusion extend below a lowest end of an exposed outer surface of the laser-weld portion (as set forth in the amended claims).

Nowhere does Osamura employ a chip 1 comprising a flange portion 1b and a protrusion 1a as shown in Fig. 2 of the present specification. On the other hand, although firing tip 60 of

Kanao et al includes stem 61 and circular head 62 (corresponding to the claimed flange portion), the firing tip in Kanao et al is not laser welded to center electrode 30, but rather is embedded in the front end 31 of the center electrode 30. Fig. 2 and paragraph [0046] of Kanao et al. Thus, there is no apparent reason that would lead one skilled in the art to employ the firing tip of Kanao et al in the spark plug of Osamura.

For the above reasons, it is respectfully submitted that the amended claims are patentable over the cited prior art and withdrawal of the foregoing rejections is respectfully requested.

Withdrawal of all rejections and allowance of claims 1, 2, 4-6, 9, 12-18 and 21-30 is earnestly solicited.

In the event that the Examiner believes that it may be helpful to advance the prosecution of this application, the Examiner is invited to contact the undersigned at the local Washington, D.C. telephone number indicated below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



Abraham J. Rosner
Registration No. 33,276

SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

WASHINGTON OFFICE
23373
CUSTOMER NUMBER

Date: April 25, 2008